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Claims

1.   A method for fluoroscopic X-ray imaging employing an X-ray irradiation unit, image processor and an imaging chain including a display monitor, characterised in that key parameters of a displayed greyscale image are highlighted by the addition of colouring according to a
5   predetermined colour coding pattern.

2.   A method as claimed in claim 1, in which the position of a catheter tip in the displayed image is highlighted in colour.

3.   A method as claimed in claim 1 or claim 2, in which the position of a catheter tip in the displayed image is tracked using suitable
10   algorithms.

4.   A method as claimed in any preceding claim, in which the highlighted features are coloured according to predetermined colour coding pattern.

5.   A method as claimed in any preceding claim, in which the
15   highlighted parameters are preferably displayed as at least normal size.

6.   A method- as--claimed in any preceding- claim,· in· which- the colour for the catheter tip is light green.

7.   A method as claimed in any preceding claim, in which the colour is applied in a regular shape.

20   8.   A method as claimed in any preceding claim, in which orientation markers are placed along a catheter wire.

9.   A method as claimed in claim 8, in which the orientation markers are small attenuating beads.

10.   A method as claimed in claim 8 or claim 9, in which the orientation markers are of alternate colours.

11.   A method as claimed in claim 10, in which the alternate colours are cyan and yellow.

5   12.   A method as claimed in any preceding claim, in which the path followed by a catheter tip may be displayed by a "tail" of variable persistence.

13.   A method as claimed in claim 12, in which the tail is displayed in a single colour.

10   14.   A method as claimed in claim 13, in which the tail colour is dark green.

15.   A method as claimed in any preceding claim, in which the tail is displayed in a variable shade.

16.   A method as claimed in claim 15, in which the tail colour varies
15   from dark green to bright green.

17.   A method as claimed in any of claims 12 to 16, in which the displayed persistence of the tail is several seconds.

18.   A method as claimed in any of claims 12 to 17, in which markers at the end of the tail are displayed at low, almost transparent, intensity
20   while those at the head of the tail are of high almost opaque intensity.

19.   A method as claimed in any of claims 12 to 14, in which the colour of all elements in the tail is the same.

20.   A method as claimed in any preceding claim, in which a catheter wire is identified and coloured.

21.   A method as claimed in claim 20, in which the wire is coloured dark red.

22.   A method as claimed in any preceding claim, in which colour is used to indicate the relative movement of features.

24.   A method as claimed in any preceding claim, in which colour is used to indicate the presence and/or velocity of contrast agent.

25.   A method as claimed in claim 24, in which a rainbow spectrum (red-orange-yellow-green-blue-violet) is used for the coloured image to overlay the greyscale anatomical image.

27.   A method as claimed in claim 25, in which red represents high velocity flow and violet low velocity flow.

28.   A method as claimed in any one of claims 24 to 27, in which the intensity of the colour is related to the remaining intensity of contrast in a blood vessel.

29.   A method as claimed in any preceding claim, in which the location and motion of the patient's anatomical features are colour coded.

30.   A method as claimed in any preceding claim, in which the colours to a greyscale anatomical image are transparent or opaque.

31.   A method as claimed in any preceding claim, in which the colouring is generated from information extracted from the image itself.

32.   A method as claimed in claim 31, in which the information comprises an image computer that connects an image sensor to the image display.

33. A method as claimed in any preceding claim, in which low level and high level parameters are combined to determine suitable colouring for the displayed image.

34. A method as claimed in any preceding claim, in which an image computer comprises a parallel set of processors (e.g. digital signal processors or PCs) connected through a high speed digital backplane or via a high bandwidth network.

35. A method as claimed in any one of claims 1 to 34, in which an image computer is a custom processor employing high density three-dimensional interconnects and multi-chip modules.

36. A method as claimed in any preceding claim, in which image data is segmented among image processors in a bespoke system in which complete images are copied to all processors simultaneously.

37. A method as claimed in any preceding claim, in which a separate processor determines the value of a single parameter or set of parameters and the results are fed back to further processors that implement a decision making algorithm to apply colours to the image.